

EMISSION INVENTORY

CATEGORIES # 61, # 868

FUEL DISTRIBUTION

NATURAL GAS - POWER PLANT FUEL USE (#61) - OTHER FUEL USE (#868)

1999 EMISSIONS

Introduction

Emissions associated with transmission of natural gas are mostly fugitive organic emissions that occur due to the leaks in pipeline. Components such as valves, flanges, pumps, compressors, and pressure relief valves (PRVs) are the potential leak sources.

Emissions from Pacific Gas and Electric's (PG&E's) pipeline system that distributes natural gas to its own power plants are covered by category #61. These plants are located in Contra Costa and San Francisco counties. Emissions from PG&E's pipeline system that distributes natural gas to residential, commercial and industrial customers in the Bay Area are in category #868.

Methodologies

Fugitive emissions occur from leaks in the pipeline distribution system. The emission factor used in the past (and initially used for this category) was 0.7% by volume of gas distributed. This factor was based on the South Coast Air Quality Management District report "Estimated Fugitive Emissions From Natural Gas Transmission For Calendar Year 1979", CES # 58685, July, 1980. Based on 1989 PG&E report titled "Unaccounted-For Gas Project", 0.2% loss factor has been used for both distribution systems: PG&E's power plants (Category #61) and PG&E's customers (Category #868).

Monthly Variation

PG&E's Customer Accounting Department provided natural gas usage data for residential, commercial, industrial and PG&E's own natural gas usage, by county, by month. Information on the City of Palo Alto's natural gas usage was obtained separately from the City's Customer Service Center and was added to PG&E's Santa Clara County values. This was done as the city obtains some "wheeled" natural gas, i.e., natural gas transported through the PG&E pipeline system, from a supplier other than PG&E.

County Distribution

PG&E's Bay Area power plants using natural gas are located in Contra Costa and San Francisco counties. County distributions for Category #61 and #868 are based on natural gas data from PG&E and City of Palo Alto.

TRENDS

History

In general, emissions increase as activity increases and emissions decrease as activity decreases. In recent years, emissions for category #868 have been increasing, while emissions for category #61 have been on the decrease.

For Base Year 1983, all natural gas distribution losses were handled as a single category which had been designated as Category #43. The category has been subsequently split into two categories (#61 and #868) since Base Year 1987.

Growth

For Category #61, it was assumed that annual emissions would tend to follow two components: services industry employment and population by county in the District. As such, a hybrid growth profile was developed based on 50% of the appropriate county services industry employment value and 50% of the appropriate county population value.

For Category #868, it was assumed that annual emissions would tend to follow two components: manufacturing industry employment and population by county in the District. As such, a hybrid growth profile was developed based on 50% of the appropriate county services industry employment value and 50% of the appropriate county population value.

The employment and population data were developed from ABAG's 1998 "PROJECTIONS" report.